IN THE CLAIMS:

Please cancel claims 1 - 3, 9, 20 - 23, and 29. Please add claims 30 - 31. Please amend claims 4 - 8, 10 - 14, 17, 19, 24 - 28, as follows:

Claims 1 - 3 (cancelled).

4. (currently amended) A method for a distributed agent, comprising:

generating a heartbeat signal containing content specified by a pre-determined configuration; and

transmitting the heartbeat signal according to an internal timing of the distributed agent, without being polled by a network health monitoring system.

5. (currently amended) The method according to claim 4, further ~~comprising~~ including performing the following before generating the heartbeat signal:

~~performing~~ establishing the pre-determined configuration; and

setting up a timer that controls the timing of the transmitting.

6. (currently amended) A method for monitoring network health, comprising:

receiving a heartbeat signal from a distributed agent located in a segment of a network; [[and]]

determining the health of the segment of the network based on [[the]] a deviation of the heartbeat signal from a baseline pattern;

logging the health of the segment into a recorded health history; and

estimating a future time at which the health of the segment becomes unacceptable based on a trend detected from the recorded health history.

7. (currently amended) The method according to claim 6, wherein [[the]] receiving [[a]] the heartbeat signal ~~comprises~~ includes:

listening to the distributed agent; and

intercepting the heartbeat signal when the distributed agent sends the heartbeat signal.

8. (currently amended) ~~The method according to claim 6, wherein the determining the health comprises~~ A method for monitoring network health, comprising:

receiving a heartbeat signal from a distributed agent located in a segment of a network;

identifying the segment of the network based on the received heartbeat signal;

extracting content from the heartbeat signal~~, received by the receiving~~;

retrieving [[the]] a baseline pattern;

analyzing the deviation between the heartbeat signal and the baseline pattern; [[and]]

verifying the health of the segment of the network based on the deviation; and

updating the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good.

Claim 9 (cancelled).

10. (currently amended) A system, comprising:

a plurality sets of agents distributed in a network for sending heartbeat signals, wherein each set of agents is located within a segment of the network;

a network health monitoring mechanism for monitoring the health of different segments of the network based on [[the]] a deviation between the heartbeat signals, received from the agents located in the segments, and one or more baseline patterns representing [[the]] a normal health of the network, wherein the health of different

segments are logged into a recorded health history and the network health monitoring mechanism estimates a future at time at which the health of one of the segments becomes unacceptable based on a trend detected from the recorded health history.

11. (currently amended) The system according to claim 10, wherein each of the agents ~~comprises~~ includes:

a heartbeat signal generator for generating a heartbeat signal containing content specified by a pre-determined configuration;

a timer for controlling the timing of transmitting the heartbeat signal; and

a heartbeat transmitter for transmitting the heartbeat signal according to the timing specified by the timer.

12. (currently amended) The system according to claim 11, further ~~comprising~~ including:

a configuration mechanism for performing the pre-determined configuration and for setting up the timer.

13. (currently amended) The system according to claim 10, wherein the network health monitoring mechanism ~~comprises~~ includes:

a heartbeat listener for listening to the plurality sets of agents and for receiving a heartbeat signal from a distributed agent located in a segment of the network; and

a heartbeat analysis mechanism for determining the health of the segment of the network based on the deviation of the heartbeat signal from [[a]] the one or more baseline patterns.

14. (currently amended) The system according to claim 13, further ~~comprising~~ including:

a network health reporting mechanism for reporting and recording the information related to the health of the network.

15. (original) A system for an agent, comprising:

a heartbeat signal generator for generating a heartbeat signal containing content specified by a pre-determined configuration;

a timer for controlling the timing of transmitting the heartbeat signal; and

a heartbeat transmitter for transmitting the heartbeat signal according to the timing specified by the timer.

16. (original) The system according to claim 15, further comprising:

a configuration mechanism for performing the pre-determined configuration and for setting up the timer.

17. (currently amended) A network health monitoring mechanism, comprising:

a heartbeat listener for listening to a plurality sets of agents, distributed in at least one segment of a network, and for receiving a heartbeat signal from a distributed agent located in a segment of the network; [[and]]

a heartbeat analysis mechanism for determining the health of the segment of the network based on [[the]] a deviation of the heartbeat signal from a baseline pattern; and

a network health record storage for receiving and storing the health of the segment,

wherein the heartbeat analysis mechanism estimates a future time at which the health of the segment becomes unacceptable based on a trend detected by analyzing the network health record storage.

18. (original) The mechanism according to claim 17, wherein the heartbeat

analysis mechanism comprises:

a heartbeat content extractor for extracting content from the heartbeat signal;

a deviation detector for detecting the deviation between the heartbeat signal and the baseline pattern; and

a network health determiner for determining the health of the segment of the network based on the deviation.

19. (currently amended) ~~The mechanism according to claim 18, further~~ A network health monitoring mechanism, comprising:

a heartbeat listener for listening to a plurality sets of agents, distributed in at least one segment of a network, and for receiving a heartbeat signal from a distributed agent located in a segment of the network;

a network segment identifier for identifying the segment from where the heartbeat signal is received;

a baseline pattern retriever for retrieving the baseline pattern corresponding to the segment of the network; [[and]]

a network health reporting mechanism for reporting and recording the information related to the health of the network; and

a baseline updating mechanism for updating the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good.

Claims 20 - 23 (cancelled).

24. (currently amended) A computer-readable medium encoded with a program for a distributed agent, the program, when executed, causing a computer to:

~~generating~~ generate a heartbeat signal containing content specified by a pre-

determined configuration; and

~~transmitting~~ transmit the heartbeat signal according to an internal timing of the distributed agent, without being polled by a network health monitoring system..

25. (currently amended) The medium according to claim 24, including the program, when executed, ~~further~~ causing the computer, before generating the heartbeat signal, to:

~~performing~~ establish the pre-determined configuration; and

~~setting~~ set up a timer that controls the timing of the transmitting.

26. (currently amended) A computer-readable medium, encoded with a program for monitoring network health, the program, when executed, causing a computer to:

~~receiving~~ receive a heartbeat signal from a distributed agent located in a segment of a network; [[and]]

~~determining~~ determine the health of the segment of the network based on [[the]] a deviation of the heartbeat signal from a baseline pattern;

log the health of the segment into a recorded health history; and

estimate a future time at which the health of the segment becomes unacceptable based on a trend detected from the recorded health history..

27. (currently amended) The medium according to claim 26, wherein the receiving [[a]] of the heartbeat signal ~~comprises~~ includes:

listening to the distributed agent; and

intercepting the heartbeat signal when the distributed agent sends the heartbeat signal.

28. ~~The medium according to claim 26, wherein the determining the health comprises~~ A computer-readable medium, encoded with a program for monitoring network health, the program, when executed, causing a computer to:

receive a heartbeat signal from a distributed agent located in a segment of a network;

identifying the segment of the network based on the received heartbeat signal;

extracting content from the heartbeat signal~~, received by the receiving~~;

retrieving [[the]] a baseline pattern;

analyzing the deviation between the heartbeat signal and the baseline pattern; [[and]]

verifying the health of the segment of the network based on the deviation;

reporting the health of the segment of the network based on the result from the verifying; and

update the baseline pattern by incorporating the content of the heartbeat signal if the segment health is good.

Claim 29 (cancelled).

30. (new) A method for a distributed agent, comprising:

generating a heartbeat signal containing content specified by a pre-determined configuration; and

independently transmitting the heartbeat signal on an irregular periodic basis, the irregular periodic basis being 1) transmitting according to a first timing when network traffic is heavy and 2) transmitting according to a second timing when network traffic is not heavy.

31. (new) A computer-readable medium, encoded with a program for monitoring network health, the program, when executed, causing a computer to:

generate a heartbeat signal containing content specified by a pre-determined configuration; and

independently transmit the heartbeat signal on an irregular periodic basis, the irregular periodic basis being 1) transmitting according to a first timing when network traffic is heavy and 2) transmitting according to a second timing when network traffic is not heavy.